

REMARKS

Claim 1 is currently amended, claims 2 through 6 have been previously presented, and claims 7 through 10 have been currently cancelled.

In the Office Action dated September 15, 2010, Examiner O'Malley has requested a restriction from the following species:

Group 1: the species illustrated by Figure 1A, which includes claims 1(a)(e)(f), 2, 3 and 4;

Group 2: the species illustrated by Figure 1B, which includes claims 1(b)(e)(f), 2, 5 and 6;

Group 3: the species illustrated by Figure 2A, which includes claims 1(c)(e)(f), 2, 7 and 8;

Group 4: the species illustrated by Figure 2A, which includes claims 1(d)(e)(f), 2, 9 and 10.

Group 1, illustrated by Figure 1A, presents an apparatus comprising "at least one transmitter coil and two closely positioned parallel receiver coils separated by a small vector, Δr , ...". Group 2, illustrated in Figure 1B, presents an apparatus comprising "at least one receiver coil and two closely positioned parallel transmitter coils, separated by a small vector Δr , ...". These two apparatus represent reciprocal gradient induction tools, which measure exactly the same field according to the reciprocity principal of electromagnetic theory.

Applicant sincerely believes Groups 1 and 2 identified by Examiner O'Malley should be considered as "a process and apparatus or means specifically designed for carrying out the said process". Therefore, contrary to the suggestion of Examiner O'Malley, Applicant believes that Group 1 and Group 2 have unity of invention.

The Applicant hereby elects the claims of Groups 1 and 2, that is, Claims 1(a)(b)(e)(f), 2, 3, 4, 5, and 6. The election is made with traverse, it being understood that Applicant reserves the right to file one or more divisional applications on the non-elected Groups 3 and 4.

In the event Examiner O'Malley does not agree with the Applicant's position that Groups 1 and 2 have unity of invention, the Applicant, in the alternative, elects Group 1 with traverse and reserves the right to file one or more divisional applications on the non-elected Groups 2, 3 and 4.

Further, Applicant believes that Group 3 and Group 4 are closely related and have unity of invention.

Indeed, Group 3, illustrated by Figure 2A, presents an apparatus comprising "a tri-axial EM induction transmitter formed by three mutually orthogonal transmitter coils, and a pair of closely located tri-axial EM induction receivers...". Group 4, illustrated in Figure 2B, presents an apparatus comprising "a pair of closely located tri-axial EM induction transmitters, separated by a small vector, Δr and a tri-axial EM induction receiver...". These two apparatus represent reciprocal tri-axial gradient induction tools, which measure exactly the same fields according to the reciprocity principal of electromagnetic theory.

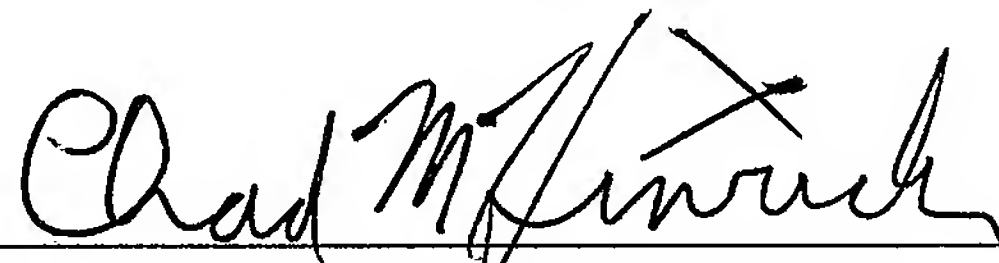
Therefore, Applicant believes Groups 3 and 4 identified by the Examiner should also be considered as "a process and apparatus or means specifically designed for carrying out the said process." Therefore, contrary to the suggestion of the Examiner, Applicant sincerely believes that Group 3 and Group 4 should be considered to have unity of invention.

If Examiner O'Malley finds any problems with the election expressed herein, she is invited to contact Applicant's attorney at the telephone number herein listed below so that any

deficiencies, informalities, mistakes or so forth can hopefully be resolved in a telephone interview to thereby expedite advancement of the application in the Patent Office.

Please charge Deposit Account No. 50-1971 any fees required by this paper or credit any overpayment to the same account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Chad M. Hinrichs", written over a horizontal line.

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